

Dyson from Venezuela. As the species will therefore not come within my limits in the 'Biologia Centrali-Americana,' and as I have been led, to some extent, to indorse one of the gravest of Gray's errors, I have thought it best to make these corrections here, concluding with a more accurate description of the animal. It appears to differ from its known congeners, not only in colour, but in the total absence from its fur of the flattened channelled spines which are characteristic of all the species of the genus except *H. anthophilus* (F. Cuv.)*, a doubtful form, described from a single immature example, which Prof. Peters believes to owe the softness of its pelage to its youth †.

Heteromys bicolor.

Perognathus bicolor, Gray, P.Z.S. 1868, p. 202 (descr. orig.).

Ears with the notch apparently bounded by two lobes; tail clad with short fine stiffish hairs; fur rather long, sparse, with no under-fur, somewhat harsh, but not in the least bristly. Colour above uniform dark brown, which extends to the outside of the limbs; feet dusky, edges of cheek-pouches and all the lower parts white, the hairs all uniform in colour throughout their length. Approximate measurements (of the mounted specimen)—length of head and body about 3·75 inches, of tail 3 inches, of hind foot 1 inch.

Hab. Venezuela (*Dyson, Mus. Brit.*).

XV.—*Descriptions of new Species of Asiatic Lepidoptera Heterocera.* By ARTHUR G. BUTLER, F.L.S., F.Z.S., &c.

[Continued from p. 69.]

Tribe GEOMETRITES.

Euschemidæ.

16. *Euschema regalis*, sp. n.

Primaries deep purple; three parallel longitudinally oblique whitish dashes at the base, the third emitted from near the base of inner margin; three transversely oblique series of pale greenish-blue spots, the first consisting of three, the second of seven, the third of four spots, some of which, however, are only

* = "*Sacomys anthophile*," Dents des Mamm. p. 187, Mém. du Mus. x. p. 419, pl. xxvi.

† Monatsb. Ak. Berl. 1874, p. 356.

separated by the nervures, the fifth and sixth of the middle series partially confluent: secondaries with the basal third sericeous snow-white, the anal fourth and three spots on the outer margin bright golden yellow; the apical area pale blue; a large patch at the end of the cell, the veins on the disk, an irregularly undulated discal belt, and a series of oval spots, large and marginal towards apex, smaller and submarginal towards anal angle, all deep purple: body chalky white, the back of collar and centre of thorax crossed by dark purple bands; pectus and posterior portion of venter bright yellow; antennæ cupreous, with black pectinations. Expanse of wings 2 inches 10 lines.

Malacca. Type B. M.

17. *Euschema proba*, sp. n.

Pale sericeous bluish grey, with purple bands and spots as in *E. pugnataria** of Java, but the bands more slender; antennæ pale red-brown, with blackish pectinations; front of head flesh-tinted with purplish central spots; back of head, collar, and thorax slightly greenish, and therefore more sordid in tint than the wings; abdomen bright cadmium-yellow, greyish spotted with purple in the centre towards the base; centre of pectus and venter bright cadmium-yellow, legs and sides of pectus greyish, the legs touched here and there with purple. Wings below slightly greenish; the internal area of primaries washed with purple; a subapical costal whitish-brown streak. Expanse of wings 2 inches 9 lines.

♂, Borneo; ♀, Darjiling. Type B. M.

This is not the first instance which I have noticed of specific identity between examples from Borneo and Darjiling; in such cases it is probable that the range extends all through N.E. India, Moulmein, and the Malay Peninsula.

Urapteridæ.

18. *Urapteryx clara*, sp. n.

Allied to *U. podaliriata*; wings white, sericeous, with the fringe red internally and grey externally: primaries triangular, the costal border crossed by fine black striations; the central third of the wing enclosed between two slightly divergent golden-brownish stripes, a slender line of the same colour half-way between them at the end of the cell; a few fine scattered testaceous striæ upon the subapical area: secondaries with the submedian vein and a stripe nearly parallel to it, running

* *E. Horsfieldii*, Moore, Cat. Lep. E. I. C. ii. pl. viii. A. fig. 7.

straight from the subcostal furca to the first median branch, and thence curving inwards to the abdominal margin, golden-brownish; a few scattered striations of the same colour upon the disk, and a streak of it above the tail, limited externally by a grey-and-black line and a dot of the same colours; tail distinctly shorter and wider than in *U. podaliriata*, and with red fringe. Wings below white, more or less cream-coloured; markings obsolete. Expanse of wings 2 inches 3 lines.

N.E. Himalayas (*Lidderdale*).

19. *Decetia arenosa*, sp. n.

Primaries above sandy yellow, densely irrorated with minute grey striations, which, however, are less numerous upon the centre of the disk, where there seems to be a yellowish belt tapering towards the costa and enclosing two or three rounded grey spots; two pale-edged gravel-reddish parallel oblique lines, the first subbasal, the second central and extending at its upper extremity almost to the apex: secondaries greyish brown, with darker striations and four conical dark grey discal spots in a straight line; costal area dull white; a dull gravel-red line across the basal third: thorax sandy greyish; abdomen of the same colour in the centre, but with orange sides and anus. Wings below grey, with bright ochreous borders; body orange. Expanse of wings 1 inch 11 lines.

N.E. Himalayas (*Lidderdale*). Type B. M.

Nearest to *D. rufifrontata*.

20. *Decetia rufescens*, sp. n.

Dark flesh-coloured, washed, excepting on costal border of secondaries, with smoky grey: primaries crossed from middle of inner margin to apex by a dark chocolate-brown stripe, terminating at apex in a small quadrate black spot; fringe red: secondaries crossed at basal third by a deep-red stripe; two alternating abbreviated discal series of black dots; fringe red: head red; body slightly yellowish in the dorsal region. Wings below salmon-coloured, the primaries crossed from apex almost to inner margin by an oblique slate-coloured stripe; apical spot interrupted upon the costa by a yellow spot; fringe yellow tipped with blackish; pectus salmon-coloured, venter yellow. Expanse of wings 1 inch 9 lines.

Sarawak. Type B. M.

21. *Oxydia calamina*, sp. n.

Stramineous, wings more or less tinted with olivaceous: primaries covered with minute grey striations, with three

oblique equidistant costal olivaceous dashes, followed by a fourth rather nearer to the third; the first of these dashes forms the commencement of an irregular dusky subbasal line; an oblique angulated ill-defined blackish line from inner margin, where it commences in a blackish smudge, to apex, where it terminates in a greyish-white furcate character resembling the letter *y*; disk beyond the oblique line clouded with olivaceous and marked with a large rounded greyish-white spot and an oblique dash of the same colour; external area whitish in the centre; an ill-defined blackish apical marginal line; fringe ferruginous: secondaries speckled with dark grey, crossed near the base by a very ill-defined zigzag greyish line; disk crossed by a pale-bordered greyish line: head and antennæ black; abdomen very pale. Wings below golden sandy yellow, speckled with black, crossed by two black lines corresponding to those of the upper surface, but sharply defined and bordered here and there with ferruginous: primaries with the apex grey above the black line; costal dashes ferruginous, more or less black-speckled; black discocellular dots to all the wings: legs and venter black-speckled; knees and tarsi blackish. Expanse of wings 2 inches 4 lines.

Darjiling (*Lidderdale*).

Allied to *O. platyptera*, "*Chærodes*" *translinquens*, and "*Chærodes*" *transponens*.

Ennomidæ.

PHŒNIX, gen. nov.

Pyrinice affine genus, forma alarum simili; ramis autem omnibus medianis bene separatis (secundo et tertio haud approximatis).
Gen. typ. *P. iris*.

22. *Phœnix iris*, sp. n.

Purple, sericeous; wings transversely striated with dull lake-red, and crossed from apex of primaries to abdominal margin of secondaries by a regular oblique pale green band enclosing a sap-green stripe; fringe dull lake-red: secondaries with the costal area pale brick-red; abdomen with the sides reddish and crossed by a pale yellowish band; head red-brown; antennæ with black pectinations. Under surface bright brick-red, wings striated with grey; fringe brown: primaries with white internal area; an abbreviated and ill-defined oblique greyish streak from the apex. Expanse of wings 1 inch 7 lines.

Darjiling (*Lidderdale*). Type B. M.

23. *Epione gynopteridia*, sp. n.

Sandy yellow : primaries sparsely striated with ferruginous and crossed by a slightly darker central belt bounded by angulated ferruginous lines, which diverge towards the costa ; apex (not including the fringe) ferruginous : secondaries with the basal area sparsely mottled with grey ; a central triangular band of testaceous, partly edged with grey and partly with ferruginous ; apical border and one or two streaks at the anal angle testaceous ; a small black dot on the centre of the second median interspace ; head and sides of abdomen golden yellow, collar testaceous ; antennæ brown. Under surface golden yellow ; wings mottled with ferruginous and crossed near the middle by a dark ferruginous line bounding internally a diffused and irregular copper-red belt ; fringe testaceous : primaries crossed near the base by an angulated dark red-brown line : palpi and anterior coxæ ochraceous ; legs with the tibiæ and tarsi testaceous. Expanse of wings 1 inch 4 lines.

N.E. Himalayas (*Lidderdale*). Type B. M.

Has the general aspect of the genus *Gynopteryx*.

24. *Rumia sulphurea*, sp. n.

Primaries above bright sericeous sulphur-yellow, mottled with grey ; the base of costa, two subbasal bands diverging from one point at the inner margin and, with the costal border, forming an irregular annulus, the centre of inner border and a discal series of irregular ill-defined spots decreasing in size from inner border to costa, an irregular reniform spot, and a few small ill-defined spots on the costa ferruginous : secondaries paler yellow, with a small dark brown discocellular spot ; a series of small grey dots beyond the middle of the disk, indistinctly united by a slender undulated line of the same colour ; external area, particularly towards the anal angle, mottled with ferruginous : thorax bright sulphur-yellow ; shoulders and palpi ferruginous ; abdomen paler. Under surface bright sulphur-yellow, markings paler than above. Expanse of wings 1 inch 9 lines.

Darjiling (*Lidderdale*). Type B. M.

25. *Endropia lugens*, sp. n.

Olivaceous, wings transversely striated with whity brown : primaries with two widely separated angulated olive-brown lines, edged with lilacine white, and diverging towards the costa ; between these lines an interrupted olive-brown diffused stripe ; an interrupted discal zigzag lilacine-white line, the sinuations of

which are filled in here and there internally with blackish; one or two lilacine spots on the outer margin; fringe tipped with lilacine: secondaries with no inner olive-brown line: head white; palpi and sides of abdomen orange; antennæ greyish brown. Under surface deep gamboge-yellow, the wings sparsely striated with reddish ferruginous, and crossed by a broad discal belt of the same colour, limited internally by a sharply defined plumbaginous and dark ferruginous straight line, externally sinuated and partially bounded by diffused plumbaginous patches; fringe as above; a black dot at the end of each cell; primaries with an indication of an angular red line at basal third. Expanse of wings 1 inch 7 lines.

Darjiling (*Lidderdale*). Type B. M.

26. *Garæus cruentatus*, sp. n.

Closely allied to *G. mactans**, but the primaries acuminate and with distinctly sinuated outer margin, as in *G. specularis*†; in colour it is considerably darker, blood-red mottled with blackish; crossed by a blackish discal stripe enclosing a grey line, and with a grey zigzag submarginal line; primaries with an irregularly zigzag subbasal blackish line, followed upon the costa by two widely separated oblique blackish dashes: secondaries with three or four widely separated yellow dots; a hyaline white dot near the base of the first median interspace: thorax greyish brown, rosy at the back; collar grey, abdomen sordid rose-red. Under surface fuliginous brown, striated with darker brown, and sprinkled with grey scales (particularly the secondaries); a grey-edged dark brown discal line, and a zigzag grey submarginal line: secondaries with two or three scattered fulvous dots. Expanse of wings 1 inch 6 lines.

N.E. Himalayas (*Lidderdale*). Type B. M.

27. *Ellopiæ pulchra*, sp. n.

Allied to *E. formosa*‡, but half as large again and somewhat different in pattern: wings sericeous grey: primaries with the costal border, including two cuneiform patches of nearly equal size, the subapical fringe and two spots near the base of the second median interspace gamboge-yellow; subcostal area, base, and a broad oblique belt (only separated by

* *Endropia mactans*, Butl. Ill. Typ. Lep. Het. iii. pl. xlvi. fig. 3. The genus *Garæus* is very closely allied to *Endropia*.

† Moore, P. Z. S. 1867, p. 623, pl. xxxii. fig. 3.

‡ Ill. Typ. Lep. Het. ii. pl. xxxv. fig. 8.

an oblique dusky line from the basal area) laky purplish densely mottled with orange; a discal series of three or four purplish-edged orange spots between the second median branch and the inner margin: secondaries with sericeous white costal area; abdominal area mottled before the middle with laky cupreous; a tapering, externally diffused, reddish-orange streak from the abdominal margin to the end of the cell, confluent, at its commencement, with a broad external border of the same colour, but which gradually breaks up into little reddish striæ as it recedes from the anal angle towards the costa: body laky red; vertex of head and antennæ sulphur-yellow. Under surface sericeous creamy whitish; the markings of the upper surface seen indistinctly through the wings: primaries with sulphur-yellow costa and ochraceous subapical area; subapical fringe golden-yellow; rest of fringe and externo-discal area cupreous: secondaries with the external border pale cupreous or dull golden. Expanse of wings 2 inches 2 lines.

N.E. Himalayas (*Lidderdale*).

28. *Orsonoba pallida*, sp. n.

Allied to *O. clelia**, but much smaller, the outer margin of the primaries much less sinuated, not at all so below the third median branch; altogether paler, the prevailing colour being creamy white; costal half of primaries grey, the markings very nearly as in *O. clelia*; all the bands testaceous, the oblique dashes across the costal border of the primaries blackish brown; secondaries with the hyaline spot at the end of the cell elongated, transverse, margined with testaceous instead of black. Expanse of wings 1 inch 11 lines.

N.E. Himalayas (*Lidderdale*). Type B. M.

29. *Auxima restitutaria*, var. *ægrola*.

Much smaller than the typical form, olivaceous brown instead of red, and with a much more feeble rosy reflection; the markings, however, all similar. Expanse of wings 2 inches 6-10 lines.

Darjiling (*Lidderdale*). Type B. M.

This form was well represented in Dr. Lidderdale's series, and was separated by him from the typical *A. restitutaria*: it may, perhaps; be a race of that species; but I am rather inclined to regard it as merely a common variety.

* Cramer, Pap. Exot. iii. pl. cclxxxviii. figs. B, C.

Boarmiidæ.

30. *Hemerophila virescens*, sp. n.

Nearest to *H. creataria*, but the primaries with subangulated outer margin; upper surface pale laky brown, clouded, striped, and spotted with sap-green; wings densely striated with black; fringe ferruginous; black discocellular lunules: primaries crossed at basal third by an irregularly angulated green stripe, and at apical third by a green-edged zigzag black line; a discal series of subconfluent green crescents, the six uppermost ones intersecting an abbreviated series of large black spots; a black marginal line interrupted at the veins: secondaries crossed before the middle by an ill-defined black stripe, and beyond the middle by an irregular series of pale reddish spots partly defined with black internally; a discal series of elongated black-edged green spots; a marginal series of black lunules: body laky brown; back of palpi, head, and collar black; abdomen mottled with blackish. Under surface sericeous laky brown: wings indistinctly striated with darker brown, a spot at the end of each cell; primaries with a belt beyond the middle and a patch at apex formed of cream-coloured striations; secondaries with a creamy apical patch, crossed by a sinuated brown submarginal line. Expanse of wings 3 inches 3-6 lines.

Darjiling (*Lidderdale*). Type B. M.

31. *Boarmia plumalis*, sp. n.

Whity brown, mottled with smoky brown; two widely sinuated central black-brown lines, the outer one dentate-sinuate and followed by a similar but less defined line or stripe; an undulated white submarginal stripe, bounded internally towards costa of primaries and anal angle of secondaries by large blackish spots; a marginal series of black lunules: primaries with a subbasal arched blackish line; two ill-defined parallel blackish stripes at basal fourth: antennæ widely plumose, the pectinations being extremely long and curved outwards; back of collar and posterior half of abdomen black, anus testaceous. Under surface whity brown; wings with blackish discocellular lunules, a dusky postmedian undulated line, and traces of a dusky submarginal line; front of pectus brownish. Expanse of wings 2 inches 9 lines.

Darjiling (*Lidderdale*). Type B. M.

In pattern most like *B. lunifera*.

32. *Hypochroma crocina*, sp. n.

Primaries above sap-green, more or less clouded with blackish, speckled with black; the two ordinary black lines

very slender, bordered internally with pale brown, externally with a slender whitish line, and forming a series of well-defined black spots upon the veins; a bifid, white, subapical spot and a marginal series of black spots: secondaries crocus-yellow; a large, rounded, black spot at the end of the cell; a clavate subapical black streak; external border, excepting at apex and anal area, sap-green, speckled with black, and traversed by a very indistinct, partially blackish-edged, whitish dentate-sinuate line; a marginal series of elongated black spots: body above sap-green, yellowish in front; abdomen with yellow sides. Under surface of wings sericeous crocus-yellow; a large jet-black patch at the end of each cell, followed in the primaries by an abbreviated white belt; these wings also with a black spot below the origin of the first median branch, external area broadly black but not so intense as on the two spots, a white patch at apex and another at the external angle, fringe spotted with white and grey: secondaries with a spot on the first median interspace; the subapical black streak as above; a marginal series of small black spots; fringe greenish, spotted with blackish: pectus cream-coloured, yellow at the sides; tibiae and tarsi banded with black; venter crocus-yellow. Expanse of wings 2 inches 4 lines.

Darjiling (*Lidderdale*). Type B. M.

Allied to *H. leopardinata* of Moore.

33. *Hypochroma vigens*, sp. n.

Sap-green*; wings transversely striated with slender darker lines, fringe tipped with rose-colour: primaries crossed by the two ordinary black lines, which are very slender and bordered with reddish on one side and whitish on the other; discocellulars slenderly black; disk beyond the outer undulated black line reddish, crossed by a series of diffused olivaceous spots followed by white dots; a white apical patch stained here and there with green; a slender undulated black marginal line: secondaries with the outer undulated black line as in the primaries, with reddish internal and white external margins; discocellulars blackish; a black undulated marginal line; an interrupted undulated white submarginal line: centre of thorax and dorsal abdominal tufts tinted with pink, each tuft placed in the centre of a slender, blackish, n-shaped marking. Under surface sericeous creamy white; wings crossed by a broad, irregular, yellowish-edged, dark brown discal belt: primaries with a diffused streak connecting the belt with the outer margin upon the radial inter-

* The type is somewhat faded; but the green colour can still be seen with the help of a lens.

spaces ; an oblique black discocellular litura. Expanse of wings 2 inches 1 line.

Darjiling (*Lidderdale*). Type B. M.

34. *Gnophos æreus*, sp. n.

Bronzy green, sprinkled here and there with bluish white and mottled with black : wings with brown fringes, slightly speckled at the base with bluish white, and traversed by a dark brown line ; a marginal undulated blackish line ; a submarginal series of blackish lunules, speckled internally with bluish-white scales ; the two usual irregularly sinuated blackish lines indicating the central belt, the inner one obsolete on the secondaries ; a blackish spot on the discocellulars ; primaries with a blackish subbasal line : abdomen brownish. Wings below brownish grey, sericeous, with darker discocellular dots, undulated discal line, and diffused discal belt ; apex of each of the wings whitish ; a marginal series of conical blackish spots, base of fringe whitish : body below pale smoky brown. Expanse of wings 2 inches 3 lines.

Darjiling (*Lidderdale*). Type B. M.

Allied to *G. muscosaria*.

35. *Argidava punctata*, sp. n.

Sordid white ; primaries crossed by six oblique series of black dots, the second series consisting of four, of which the second is larger and forms the discoidal stigma or discocellular spot, the last series marginal. Under surface creamy white, sericeous ; all the wings with a grey discocellular spot, a dentate-sinuate discal line, a submarginal series of indistinct spots ; primaries with a marginal series of blackish dots, with golden-yellow costal margin and apex ; legs and venter pale testaceous. Expanse of wings 1 inch 5 lines.

Darjiling (*Lidderdale*). Type B. M.

Allied to *A. maculata*.

Geometridæ.

36. *Tanaorhinus smaragdus*, sp. n.

Bright green, above sea-green, wings with snow-white fringe ; a discal slightly irregular series of snow-white spots ; an olive-green stripe, bordered externally with white, slightly undulated in the primaries just beyond the middle : primaries with a second angular line, edged internally with white at basal fourth ; an olive-green discocellular dot : body in the type ochreous, with the exception of the collar, a series of lateral spots on the abdomen and the anal tuft* ; two or three

* But probably, when quite fresh, the body is wholly green above, like the wings.

dorsal dots and the sides of the abdomen snow-white; antennæ with ferruginous pectinations. Wings below pale emerald-green, with an indistinct discal series of sap-green spots; primaries also with a straight postmedian stripe of the same colour; veins white; fringe sap-green tipped with white: body white, yellowish in front. Expanse of wings 2 inches 5 lines.

N.E. Himalayas (*Lidderdale*). Type B. M.

37. *Geometra grata*, sp. n.

Emerald-green; wings sparsely striated with golden orange: primaries with the costal margin pinky whitish, crossed by dark brown striæ and dots; two widely separated, inarched, subparallel golden-orange lines, the inner one distinctly irregular, the outer one very slightly so; fringe tipped with white: secondaries with the costal border, abdominal margin, and the outer half of the fringe upon the outer margin snow-white; a transverse, diffused, golden-orange stripe just before the middle: palpi, antennæ, and front of collar pinky white; abdomen creamy white, greenish at base. Under surface sericeous white, the wings showing a tint of green owing to the transparency of their texture; costal border creamy; the numerous striæ of the upper surface indistinctly visible; a curved greyish line just beyond the middle; minute blackish discocellular dots: pectus green in front. Expanse of wings 1 inch 10 lines.

Darjiling (*Lidderdale*). Type B. M.

Nearest to *G. dentisignata* of Moore.

[To be continued.]

XVI.—*Report on Specimens dredged up from the Gulf of Manaar and presented to the Liverpool Free Museum by Capt. W. H. Cawne Warren.* By H. J. CARTER, F.R.S. &c.

[Continued from p. 61.]

[Plates VII., VIII.]

Geodina.

To facilitate an understanding of the complicated spiculation of a typical *Geodia*, and thereby to save repetition in description hereafter, the following definitions are premised, viz. :—

1. The “zone-spicule.” This is generally the largest of all and trifid at its external extremity, where the arms, either